

## **SYSTEMS AND METHODS FOR MOTOR VEHICLE-BASED EMERGENCY/HAZARD DETECTION**

### **ABSTRACT**

An emergency vehicle detector (EVD) operating as a safety device in association with any motor vehicle enables motorists to be warned of emergencies/hazards existing near the motor vehicle or within its path of travel. In more developed state an emergency/hazard detection system can include a signal generator that can be placed within an emergency vehicle or stationary object related with a potential hazard to transmit a warning in the form of at least one of optical, radio frequency, radar or infrared signatures to EVDs associated with civilian motor vehicles. The EVD includes an emergency signal detector adapted to detect emergency signal emitted by emergency transmitters; a direction module for determining the general location of the emergency signal's emission with respect to the motor vehicle; an alarm generator for generating a visual alarm; a display for indicating the direction of an emergency with respect to the motor vehicle. An emergency/hazard detection system can including EVDs associated with motor vehicles can also be adapted to also detect from what location (e.g., left, right, rear, front) relative to an operator's motor vehicle and emergency, emergency vehicle, or other situation requiring caution (e.g., school bus stops, pedestrian crossing/crosswalks, school zones, road construction) is located. Vehicle signatures that the EVD can be designed to detect include ambulance, police and fire engine light patterns, and conditions associated with school buses, heavy pedestrian activity within crosswalks and school zones.